

# Gastroesophageal Reflux Disease, Hyperacidity and Constipation



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# Introduction: GERD

- Often called reflux
- Definition: Symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus
- 7 million Americans suffer from GERD
- No data from India
- Increase in obesity as well as western diet: increased incidence of GERD
- The incidence of GERD increases dramatically in people over age of 40

# Normal Function of Esophagus and LES

- **Esophagus**
  - **Transports food from mouth to stomach through peristaltic contractions**
- **Lower esophageal sphincter (LES)**
  - **Relaxes, on swallowing, to allow food to enter stomach and then contracts to prevent reflux**
- **Normal some amount of reflux multiple times each day (transient relaxation of LES): mostly occurs during postprandial state, is transient, does not occur during sleep, and does not result in reflux symptoms**

# Causes for LES Incompetence

- **High fat and carbohydrates in diet**
- **Alcohol consumption**
- **Tobacco products**
- **Carminatives (peppermint & spearmint)**
- **Acidic fruit juices & tomato-based foods**
- **Some medications (e.g. calcium channel blockers & nitrates)**
- **Forceful abdominal breathing**

# Pathogenesis

- **3 lines of defense must be impaired for GERD to develop**
  - **LES barrier impairment**
    - **Relaxation of LES**
    - **Low resting LES pressure**
    - **Increased gastric pressure**
  - **Decreased clearance of refluxed materials from esophagus**
  - **Decreased esophageal mucosal resistance**

# Contributing Factors

- **Decrease LES pressure**
  - **Chocolate**
  - **Alcohol**
  - **Fatty meals**
  - **Coffee, cola, tea**
  - **Garlic**
  - **Onions**
  - **Smoking**
- **Directly irritate mucosa**
  - **Tomato-based products**
  - **Coffee**
  - **Spicy foods**
  - **Citrus juices**
  - **Medicines: NSAIDS, aspirin, iron, KCl, alendronate**
- **Stimulate acid secretions**
  - **Soda**
  - **Beer**
  - **Smoking**

# Typical Symptoms

- **Most common when  $\text{pH} < 4$** 
  - **Heartburn**
  - **Belching and regurgitation**
  - **Hyper-salivation**
  - **Sour taste**
- **May be episodic or nocturnal**
- **May be aggravated by meals and reclining position or increased intra-abdominal pressure**

# Complications

- **Esophagitis**
- **Esophageal strictures and ulcers**
- **Hemorrhage**
- **Perforation**
- **Aspiration**
- **Development of Barrett's esophagus**
- **Precipitation of an asthma attack**

# Barrett's Esophagus

- **Highest prevalence in adult Caucasian males but seen now in Indians also**
- **Histologic change: Lower esophageal tissue begins to resemble the epithelium in the stomach lining**
- **Predisposes to esophageal cancer (adenocarcinoma)**
- **More frequent, more severe, and longer-lasting symptoms of reflux, increased risk of cancer**
- **Suspect: Long standing erosive esophagitis, dysphagia, warning signs**

# Diagnosis

- **Clinical symptoms and history**
  - **Presenting symptoms and associated risk factors**
- **Give empiric therapy and look for improvement**
- **Endoscopy if warning signs present**

# When to see Gastroenterologist ?

- Chest pain
- Heartburn while taking H2RAs or PPIs
  - Or heartburn that continues after 2 weeks of treatment
- Nocturnal heartburn symptoms
- Frequent heartburn for > 3 months
- GI bleeding and other warning signs
- Concurrent use of NSAIDS
- Children < 12 years old

# Diagnosis

- **Laryngoscopy**
- **24-hour pH monitoring**
- **Endoscopy**

# Diagnosis: Key Points

- **If classic symptoms of heartburn and acid regurgitation dominate a patient's history, then they can help establish the diagnosis of GERD with sufficiently high specificity, although sensitivity remains low compared to 24-hour pH monitoring**
- **Presence of atypical symptoms, although common, cannot sufficiently support clinical diagnosis of GERD**
- **No gold standard exists for the diagnosis of GERD**

# Diagnosis: Key Points

- **Although 24-hour pH monitoring is accepted as standard with a sensitivity of 85% and specificity of 95%, false positives and false negatives still exist**
- **Endoscopy lacks sensitivity in determining pathologic reflux but can identify complications (eg, strictures, erosive esophagitis, Barrett's esophagus)**
- **Barium radiography has limited usefulness in diagnosis of GERD and is not recommended**

# Diagnosis

- **Erosive Reflux Disease:** GERD with heartburn symptoms accompanied by objective evidence of erosions
- **Non-erosive reflux disease (NERD):** GERD with heartburn symptoms but without endoscopic evidence of mucosal erosions. Abnormal acid exposure on the impedance-pH monitoring and is responsive to PPI
- **Functional heart burn:** endoscopic negative disease, however it is important to note that it is a distinct entity from NERD
  - Retrosternal burning discomfort or pain refractory to anti-secretory therapy without histopathologic abnormality, motility disorder or structural abnormality and no acid reflux for at least three months with symptoms onset at least six months prior to the diagnosis

# Therapy Goals

- **Alleviate or eliminate symptoms**
- **Diminish the frequency of recurrence and duration of esophageal reflux**
- **Promote healing – if mucosa is injured**
- **Prevent complications**

# Therapy

- **Therapy is directed at:**
  - **Increasing LES pressure**
  - **Enhancing esophageal acid clearance**
  - **Improving gastric emptying**
  - **Protecting esophageal mucosa**
  - **Decreasing acidity of reflux**
  - **Decreasing gastric volume available to be refluxed**

# Treatment

- **Three phases in treatment**
  - **Phase I: Lifestyle changes – 2 weeks**
    - **Lifestyle modifications**
    - **Patient-directed therapy with OTC medications**
  - **Phase II: Pharmacologic intervention**
    - **Standard/high-dose anti-secretory therapy**
  - **Phase III: Surgical or Endoscopic intervention**
    - **Patients who fail pharmacologic treatment or have severe complications of GERD**

# Treatment

- **Mild intermittent heartburn (Phase I)**
  - **Treat with lifestyle changes plus antacids AND/OR low dose OTC H<sub>2</sub>-receptor antagonists (H<sub>2</sub>RA's) as needed**
- **Symptomatic relief of mild to moderate GERD (Phase II)**
  - **Treat with lifestyle changes plus standard doses of H<sub>2</sub>RA's for 6-12 weeks OR proton pump inhibitors (PPI's) for 4-8 weeks**

# Treatment

- **Healing of erosive esophagitis or treatment of moderate to severe GERD (Phase II)**
  - **Lifestyle modifications plus PPI's for 8-16 weeks OR high dose H2RA's for 8-12 weeks**
    - **PPI's preferred as initial choice due to more rapid symptom relief and higher rate of healing**
  - **May also add a prokinetic/promotility agent**

# Treatment Considerations

- **Maintenance therapy may be needed**
  - **Large % of patients experience recurrence within 6-12 months after stopping therapy**
  - **Goal is to control symptoms and prevent complications**
  - **May use antacids, PPIs or H2RAs**
    - **In patients with more severe symptoms, PPI most effective**

# Lifestyle Modifications

- **Elevate the head of the bed 6-8 inches**
- **Decrease fat intake**
- **Smoking cessation**
- **Avoid recumbency for at least 2-3 hours post-prandial**
- **Weight loss**
- **Limit/avoid alcohol intake**
- **Wear loose-fitting clothing**
- **Avoidance of aggravating foods**
- **These changes alone may not control symptoms**

# Things to Avoid

- **Tobacco**
- **Foods high in fat**
- **Spicy food**
- **Alcohol**
- **Caffeine & Chocolate**
- **Activities that compress the abdomen**

# Treatment Key Points

- **Non-erosive reflux disease (NERD): Step-up (H2RA, then a PPI if no improvement) and step-down (PPI, then the lowest dose of acid suppression) therapy are equally effective for acute treatment and maintenance**
- **On demand (patient-directed) therapy is most cost-effective**

# Treatment Key Points

- **Erosive esophagitis: Initial PPI therapy is the treatment of choice for acute and maintenance therapy for patients with documented erosive esophagitis**

# POINTS TO REMEMBER

- **Frequent heartburn, also called acid indigestion, is the most common symptom of GERD in adults**
- **Anyone experiencing heartburn twice a week or more may have GERD**
- **You can have GERD without having heartburn. Your symptoms could include a dry cough, asthma symptoms, or trouble swallowing**
- **Health care providers usually recommend lifestyle and dietary changes to relieve symptoms of GERD. Many people with GERD also need medication. Surgery may be considered as a treatment option**

# Common Mistakes

- **All that burns is not GERD: Consider cardiac disease**
- **All that refluxes is not GERD: Consider Achalasia Cardia**
- **All that Regurgitates is not GERD: Rumination syndrome is a functional gastrointestinal disorder that is characterized by the effortless regurgitation of food from the stomach to the oral cavity, followed by either reswallowing or spitting**

# Common Mistakes

- **All sore throat is not GERD:** reflux detection with pH or pH-impedance monitoring should be recommended in patient with ENT symptoms to confirm the diagnosis of GORD
- **All esophageal erosions is not GERD:** Consider eosinophilic esophagitis

# Common Mistakes

- **All belching is not GERD:** Gastric belch and supragastric belch.
- **Gastric belch results from a reflex that leads to relaxation of the oesophagogastric junction and venting of gastric air. Supragastric belching: sucking of air into oesophagus and then expelling it immediately before it has reached stomach**
- **Most patients with excessive belching are suffering with supragastric belching and do not have GERD**

# Constipation

- **Common condition with 15% prevalence in North America and more common in females**
- **Symptoms increase with age > 65**
- **Primary Constipation:**
  - **Normal transit : Most common**
    - **hard stool/difficulty with defecation, normal stool frequency**
  - **Slow Transit:** increased transit time of stool through colon with infrequent defecation, bloating, and abdominal discomfort
  - **Defecatory disorders:** rectal receptors may have diminished response to stretching, blunting urge to defecate despite accumulation of large quantities of stool.

# Constipation

- **Secondary constipation:** medication use, chronic disease processes, and psychosocial issues

# Constipation

- **Symptoms: decreased bowel frequency, hard stools, sense of incomplete evacuation, or associated symptoms of abdominal bloating and discomfort**
- **These symptoms, often grouped together under label constipation, are no more than an end expression of altered large-bowel function, or perceived malfunction, and may be part of a range of clinical syndromes**

# Constipation: Definition

- **Historically: < 3 bowel movements per week**
  - **But infrequency doesn't necessarily correlate with pathophysiology or symptoms**
- **≥ 2 of the following (for ≥ 3 months with symptom onset ≥ 6 months prior to diagnosis):**
  - **Straining during ≥ 25% defecations**
  - **Lumpy or hard stools ≥ 25% defecations**
  - **Sensation of incomplete evacuation ≥ 25% of the time**
  - **Sensation of anorectal obstruction/blockage ≥ 25% of time**
  - **Manual maneuvers to facilitate defecation ≥ 25% of the time**
  - **< 3 defecations/week**

# Constipation

## ➤ Alarm signs or symptoms needing further investigation

- ❑ History of rectal bleeding or anemia

- ❑ Weight loss, fever

- ❑ Family history of colon cancer

- ❑ Age > 50 consider secondary causes of constipation

**Most patients with long-standing constipation and no recent change in symptoms require little or no investigation**

# Investigations

- **Thyroid functions: isolated constipation rare**
- **Colonoscopy: only if indicated**
- **Transit study: allows clarification about bowel function and forms an excellent point of communication with the patient**
  - **Slow transit is confirmed, or transit is normal**
- **Anorectal manometry or defecaography**

# Bottom Line

- **Constipation is a clinical diagnosis**
- **Initial treatment without further testing in patients without alarms signs**
- **Discontinue medicines that can cause constipation**
- **Suggest a bowel habit diary and diet history to correlate dietary factors with stool consistency and timing**
- **Determine if there is coexisting defecatory disorder**
- **Management of chronic constipation includes patient education, behavior modification, dietary changes, and laxative therapy**

# Patient Education

- **Efforts to reduce dependency on laxatives by emphasizing that daily bowel movements are not normal or necessary for health**
- **Increase fluid and fiber intake**
- **Patients who overuse laxatives should be advised to try to taper their use**
- **Patients should be advised to try to defecate after meals, thereby taking advantage of normal postprandial increases in colonic motility**
- **Should place their feet on small step stool instead of on the floor to straighten anorectal junction**

# Dietary Changes and Bulk Laxatives

- Dietary fiber and bulk-forming laxatives such as psyllium or methylcellulose are most physiologic and effective approach to therapy
- Taken together with adequate fluids, this can improve bowel habits in many patients with constipation

# Fibre Intake

- **Cereal fibers generally possess cell walls that resist digestion and retain water within their cellular structures**
- **Fiber found in citrus fruits and legumes stimulates the growth of colonic flora, thereby increasing fecal mass**
- **Recommended amount of dietary fiber is 20 to 35 g/day**
- **For some patients (and especially almost all those with slow transit constipation), fiber increases bloating and distention**
- **Slowly increase fibre in diet**

# Other Laxatives

- **Osmotic agents — Polyethylene glycol (PEG), poorly absorbed or nonabsorbable sugars, and saline laxatives**
- **Stimulant Laxatives: Stimulant laxatives such as bisacodyl (eg, some forms of Dulcolax), senna (eg, Senokot), and sodium picosulfate (eg, Dulcolax drops) primarily exert their effects via alteration of electrolyte transport by the intestinal mucosa**
- **They also increase intestinal motor activity**

# Treatment Options

- **Stool bulking agents**
  - **Increase fecal bulk to increase passage through colon**
- **Stimulant laxatives**
  - **Increase colonic peristalsis in order to propel stool forward**
- **Osmotic agents**
  - **Draw fluid into lumen leading to more rapid colonic transit**
- **Prokinetic agents**
- **Secretory agents**

# Biofeedback

- **Biofeedback to retrain defecation muscles may be effective for treating constipation caused by pelvic floor dysfunction**
- **May be appropriate for patients who are physically and mentally capable of participating.**

# Enemas

- **Enemas and suppositories can be useful for fecal impaction or in patients who cannot tolerate oral preparations**
- **Phosphate enemas should be avoided in older adults because of high risk of electrolyte disturbances**
- **Mineral oil enemas are a safer alternative to phosphate enemas, with local adverse effects of perianal irritation or soreness**
- **Plain warm water enemas are safe alternative**
- **Glycerin suppositories are safe alternatives to enemas and have been shown to improve rectal emptying in patients with chronic constipation.**

# Constipation: Myths

- **Constipation is caused by inadequate dietary fibre intake**
- **Constipation is caused by inadequate fluid intake**
- **Constipation is caused by inadequate physical exercise**
- **Constipation is caused by a long colon**
- **Increased dietary fiber relieves symptoms in most patients with constipation**
- **Increased fluid intake is a helpful treatment for constipation**
- **Laxatives cause enteric neural damage**